

Geometry · Circles: Chords, Arcs and Inscribed Angles · Quiz

Common Core G-C.A.1, G-C.A.2 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This 10-question quiz checks the core circle facts: similar circles, central and inscribed angles, semicircles, tangents, chords and inscribed quadrilaterals. Choose the one best answer for each question and read the explanation afterward.

Geometry Common Core: **G-C.A.1 · G-C.A.2**

Questions

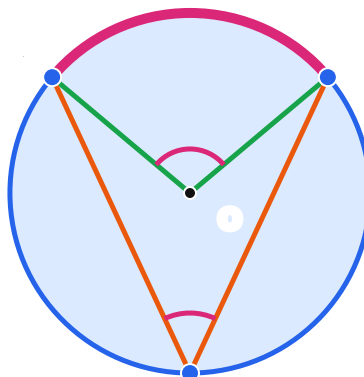
Question 1

Which statement about circles is true?

- A. Two circles are similar only if their radii are equal
- B. Any two circles are similar
- C. Two circles are similar only if they share a center
- D. Circles with different radii are never similar

Question 2

Arc AB measures 100° . What is $m\angle ACB$?



Arc AB measures 100° .

- A. 100°

- B. 50°
- C. 200°
- D. 25°

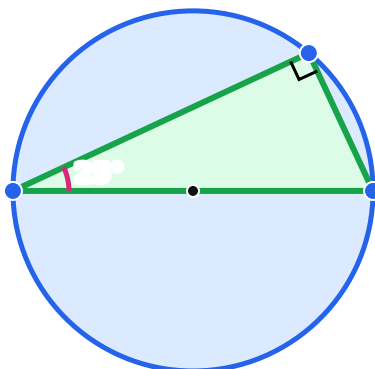
Question 3

An inscribed angle measures 35° . What is the measure of its intercepted arc?

- A. 35°
- B. 17.5°
- C. 140°
- D. 70°

Question 4

Segment AB is a diameter and $m\angle A = 25^\circ$. What is $m\angle B$?



Segment AB is a diameter.

- A. 25°
- B. 90°
- C. 155°
- D. 65°

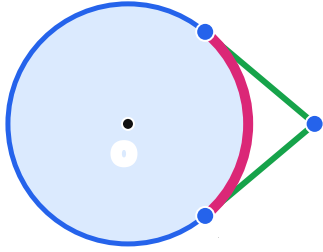
Question 5

A tangent segment AP is 12 long and the radius OA is 9. What is OP ?

- A. 15
- B. 21
- C. $\sqrt{63}$
- D. 225

Question 6

Tangent segments PA and PB are drawn and minor arc AB measures 100° . What is $m\angle P$?



Minor arc AB measures 100° .

- A. 80°
- B. 100°
- C. 50°
- D. 40°

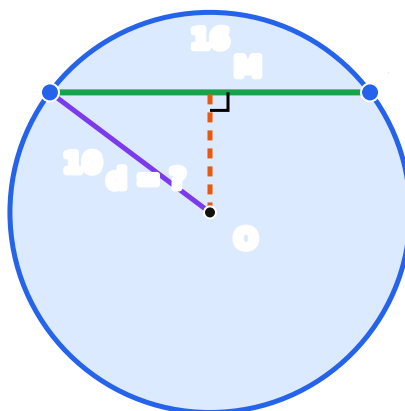
Question 7

Quadrilateral $ABCD$ is inscribed in a circle and $m\angle A = 78^\circ$. What is $m\angle C$?

- A. 78°
- B. 90°
- C. 102°
- D. 282°

Question 8

A chord is 16 units long in a circle of radius 10. How far is the chord from the center?



A chord and the perpendicular from the center.

- A. 8

- B. 2
- C. 6
- D. $\sqrt{164}$

Question 9

Two chords of the same circle have equal length. Which must be true?

- A. Both chords pass through the center
- B. The chords are parallel
- C. The chords intersect at right angles
- D. Their intercepted minor arcs have equal measure

Question 10

A central angle and an inscribed angle intercept the same arc. The central angle measures 148° . What does the inscribed angle measure?

- A. 148°
- B. 37°
- C. 74°
- D. 296°

Answer key

1. **B** – A translation and a dilation map any circle onto any other. Equal radii give congruent circles, which are a special case of similar ones.
2. **B** – The inscribed angle is half the intercepted arc: $\frac{100}{2} = 50$. Using the whole arc (100°) is the usual mistake.
3. **D** – The arc is twice the inscribed angle: $2(35) = 70$. Halving instead of doubling gives 17.5° .
4. **D** – The angle at C is 90° , so $m\angle B = 180 - 90 - 25 = 65$. The value 155° comes from subtracting only from 180° .
5. **A** – The radius is perpendicular to the tangent, so $OP = \sqrt{9^2 + 12^2} = 15$. Adding the lengths (21) or leaving out the square root (225) are common slips.
6. **A** – The angle at P and the minor arc are supplementary: $180 - 100 = 80$. Half the arc (50°) is the inscribed-angle rule, which does not apply here.
7. **C** – Opposite angles of an inscribed quadrilateral are supplementary: $180 - 78 = 102$.
8. **C** – Half the chord is 8, so $d = \sqrt{10^2 - 8^2} = 6$. The value 8 is half the chord, and 2 is $10 - 8$.
9. **D** – Equal chords cut off equal arcs. The other statements can be false for equal chords that are not diameters, parallel or perpendicular.
10. **C** – The inscribed angle is half the central angle: $\frac{148}{2} = 74$.

Remember:

- All circles are similar: a translation and a dilation with factor $\frac{r_2}{r_1}$ map one onto another.
- A central angle equals its arc; an inscribed angle equals half its arc.
- An angle inscribed in a semicircle measures 90° .
- A radius is perpendicular to a tangent, and a circumscribed angle is 180° minus its minor arc.
- Opposite angles of an inscribed quadrilateral are supplementary.